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RECENT AND FORTHCOMING MEETINGS

1951

7-25 May	Fourth World Health Assembly, Geneva
18 May	WHO Regional Committee for the Western Pacific, first session, Geneva
28-29 May	WHO Consultative Committee for Europe, first session, Geneva
1-18 June	WHO Executive Board, eighth session, Geneva
30 July-4 August	WHO Expert Committee on Insecticides, third session, Savannah, Ga.
3-5 September	WHO Consultative Committee for Europe, second session, Geneva
18-21 September	WHO Regional Committee for the Western Pacific, second session, Manila
20-25 September	WHO Regional Committee for South-East Asia, fourth session, Rangoon
24-26 September	WHO Regional Committee for Africa, first session, Geneva
15-20 October	WHO Expert Committee on Environmental Sanitation, second session, Geneva
15-20 October	WHO Expert Committee on Mental Health, Alcoholism Subcommittee, second session, Copenhagen
15-20 October	WHO Expert Committee on Nursing, second session, Geneva
22 October-4 November	European Seminar on Alcoholism, Copenhagen
29 October-3 November	WHO Expert Committee on the International Pharmacopoeia, ninth session, Geneva
November	WHO Expert Committee on Cholera, first session, New Delhi
5 November	WHO Expert Committee on the International Pharmacopoeia, Subcommittee on Non-Proprietary Names, third session, Geneva
5-10 November	WHO Expert Committee on Maternity Care, first session, Geneva
12-17 November	Second Seminar for European Sanitary Engineers, Rome
19-23 November	WHO Expert Committee on Drugs Liable to Produce Addiction, third session, Geneva
21-29 November	WHO Conference on Morbidity Statistics ; WHO Expert Committee on Health Statistics, third session, Geneva
26-30 November	WHO Expert Committee on Trachoma, first session, Alexandria
28 November-4 December	WHO Expert Committee on Insecticides, fourth session, Geneva
December	WHO Expert Committee on Biological Standardization, fifth session, Geneva
3-7 December	WHO Expert Committee on Public Health Administration, first session, Geneva
3-8 December	WHO Expert Committee on the Physically Handicapped Child, first session, Geneva

THE FIRST INTERNATIONAL PHARMACOPOEIA

C. H. HAMPSHIRE, C.M.G., M.B., B.S., B.Sc.

Formerly Secretary of the British Pharmacopoeia Commission
General Medical Council Office, London

The publication of an international pharmacopoeia is a definite contribution to the fulfilment of the first objective of the World Health Organization—the attainment by all peoples of the highest possible level of health. This book, which is the result of work begun in 1937 by a technical commission of the Health Organization of the League of Nations, represents an endeavour to further the unification of the pharmacopoeias of the world. In May 1945, during the lull in its work caused by the second World War, the commission issued an interim report in which the following reasons for unifying pharmacopoeias are set out :

" There is a desire for a uniform system of nomenclature, and it is specially urged that the same name should, in all countries, designate a drug of the same strength and composition. Differences in national standards for widely used materials constitute a source of danger to travellers who may need to have the same prescription dispensed in different countries, not only because of the possible supply of a drug differing in strength from that to which the patient is accustomed, but also because of delays in receiving medicines that may have to be specially made or procured. Such differences, by causing confusion and misunderstanding, are also a hindrance to the spread of medical and pharmaceutical knowledge. A state of affairs under which the same supply of a drug or chemical may be accepted in one country and rejected in another may lead to the retention of lower standards in manufacture, whilst the maintenance of a common high standard would tend to economy of production and would facilitate commerce between the nations." [1]

The modern developments of travel by air and the general increase in rapidity of transport strengthen the cogency of these reasons.

Brief History

Projects for the preparation of an international pharmacopoeia were mooted from time to time in the latter half of the 19th century, and some unsuccessful attempts were made. Later efforts to bring about international uniformity were more restricted, attention being concentrated on the more potent drugs. Following the Brussels Conference of 1902, the first International Agreement for the Unification of the Formulae of Potent Drugs was produced and signed in 1906. The strengths of preparations and methods of procedure specified in this document were

[1] *Bull. Hlth Org. L.o.N.* 1945, **12**, 112

adopted in many pharmacopoeias. The second international conference was held in 1925 and the second International Agreement, which resulted from its deliberations, was completed in 1929.

The work which has resulted in the production of the *Pharmacopoea Internationalis* arose from this Agreement, which has considerably influenced the various national pharmacopoeias. The main provisions of the second Agreement deal with the unification of methods of preparation and strengths of drugs, of nomenclature, and of maximal doses. There are also the important provisions that an international organization for the unification of pharmacopoeias should be set up and that the League of Nations should be asked to constitute a permanent secretariat.

The primary purpose of the League of Nations commission was to revise and extend this International Agreement, and an early decision was that this could best be done by presenting the decisions as to formulae and strengths of drugs, names, and doses, in the form of a book—to be called the " International Pharmacopoeia "—produced on the lines of the most recent national pharmacopoeias, with complete monographs on the drugs, specifying standards, tests, and assays, and general notices, appendices on reagents, standard methods, special tests and assays, etc.

Contribution of WHO

After the war, in 1947, the Interim Commission of the World Health Organization took over the work on pharmacopoeias previously undertaken by the Health Organization of the League of Nations and set up an Expert Committee on the Unification of Pharmacopoeias to continue the work of the League's technical commission, with the following terms of reference : " to produce a draft International Agreement for the Unification of Pharmacopoeias, modifying and extending the existing Agreement for the Unification of the Formulae of Potent Drugs, and to present the draft Agreement as an International Pharmacopoeia, similar in form to the present-day national pharmacopoeias." [2]

Since then the membership of the committee has been increased, the Permanent International Pharmacopoeia Secretariat has been established, and every encouragement and help has been given towards the production of the book which is now ready in its English and French editions. A Spanish edition is in preparation.

The first step in preparing the *Pharmacopoea Internationalis* was, of course, the selection of the drugs to be described. In making the selection, all the recent national pharmacopoeias as well as a number of official lists current in various countries were examined ; valuable assistance was given by the International Pharmaceutical Federation. At a later stage

[2] *Off. Rec. World Hlth Org.* **8**, 54

FIG. 1. TITLE-PAGE OF THE "PHARMACOPOEA INTERNATIONALIS", VOLUME I

BULLETIN OF THE WORLD HEALTH ORGANIZATION
SUPPLEMENT 2

PHARMACOPOEA INTERNATIONALIS

EDITIO PRIMA

Volumen I

INTERNATIONAL PHARMACOPOEIA

FIRST EDITION

Volume I

WORLD HEALTH ORGANIZATION
PALAIS DES NATIONS
GENEVA
1951

FIG. 2. A PAGE FROM VOLUME I OF THE " PHARMACOPOEA INTERNATIONALIS "

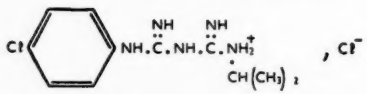
ethanol (50 per cent.) R ; melting-range of the crystals, after drying at 100°, 236° to 240°.

Melting-range. Of the higher-melting form, 127° to 131° ; melting-temperature of the lower-melting form, about 121°.

Specific rotation. Determined at 20° in a 2.0 per cent. w/v solution of the substance, dried over sulfuric acid R for four hours, in dioxan R, +172° to +182°.

Storage. Progesterone should be kept in a tightly-closed container, protected from light.

PROGUANILI HYDROCHLORIDUM



$C_{11}H_{16}N_5Cl$, HCl Mol. Wt. 290.2

Proguanil Hydrochloride is N^1-4-chlorophenyl-N^5-*iso*-propyldiguanide hydrochloride. It contains not less than 98.0 per cent. of $C_{11}H_{16}N_5Cl$, HCl.

Description. Colourless, fine crystals, or a white, crystalline powder ; odourless ; taste, bitter.

Solubility. Soluble in about 80 parts of water ; more soluble in hot water ; soluble in ethanol (95 per cent.) R ; practically insoluble in chloroform R and in ether R.

Identification

A. To 10 ml of a saturated solution in water add 5 drops of iodine TS ; an orange-brown precipitate is produced.

B. To 10 ml of a saturated solution in water add 5 drops of potassium ferrocyanide TS, previously rendered slightly acid to litmus TS by the addition of dilute nitric acid R ; a white precipitate is produced which dissolves on the addition of a few drops of dilute nitric acid R.

C. To 10 ml of a saturated solution in water add 5 drops of potassium dichromate TS ; a yellow precipitate is produced which dissolves on the addition of a few drops of dilute nitric acid R.

the committee was helped by suggestions from the WHO expert committees which deal with such subjects as biological standardization, malaria, tuberculosis, venereal diseases, and drugs liable to produce addiction.

Description of the Pharmacopoea Internationalis

Drugs of long-established therapeutic interest which are common to a number of national pharmacopoeias are included in the *Pharmacopoea Internationalis* (Ph.I.), but the scope is not restricted to these ; some drugs of recent introduction which appear likely to be generally accepted for later pharmacopoeias are also described. Neither is the scope of the Ph.I. confined to therapeutic agents ; some substances used for diagnostic purposes and certain materials required for pharmaceutical purposes are likewise included.

The book comprises 199 monographs containing descriptions, standards, tests, and assays designed to provide as complete a control specification as possible for each drug. There are 43 appendices defining general tests and methods and giving other data which are necessary for the understanding and use of the monographs. The methods described in the appendices have been made as complete and definite as possible so as to offer precise guidance to underdeveloped countries.

The monographs form a representative selection of the most valuable members of the various pharmacological groups—anaesthetics, analgesics, antimalarials, hypnotics, etc. Besides the vegetable, inorganic, and organic substances which are described in most pharmacopoeias, sera, vitamins, hormones, and a selection from the range of sulfonamides and barbiturates are included.

The vegetable drugs of the *Pharmacopoea Internationalis* are restricted to those which have definite therapeutic activity and can be assayed chemically or biologically, e.g., opium, digitalis, ergot, belladonna, etc. An attempt has been made to give complete scientific descriptions, with details of chemical tests and assays.

Galenical pharmacy, in which those responsible for the Agreement of 1929 showed much interest, has little place in the *Pharmacopoea Internationalis.*

In completing the monographs, the various tests and assays have, as far as possible, been carried out practically on samples of the drugs actually on the market, so that the *Pharmacopoea Internationalis* is not merely a compilation made at the desk and in the committee room, but is an authoritative work containing standards and methods which have been confirmed at the laboratory bench.

In accordance with the international character of the book, the recommendations and rulings of responsible international bodies have been followed, for example, in the botanical names of drugs, in chemical names

and formulae, in the atomic weights used, and in certain methods of analysis. The international biologically standardized preparations and units are those worked out by the Expert Committee on Biological Standardization and officially adopted by the World Health Organization. Review by that committee of the monographs and appendices relating to substances which are tested and standardized by biological methods has contributed considerably to the completeness of these sections of the book.

The international names of drugs are in Latin, the traditional language of medicine and pharmacy. Although the use of Latin names is being abandoned by certain national commissions, that language still remains the best medium for international purposes despite difficulties which arise in finding suitable latinized names for certain new products.

Very few synonyms are given in the *Pharmacopoea Internationalis* because of limitations of space, but a comprehensive list of alternative names has been prepared for publication.

The desire for uniformity in maximal doses expressed in the Agreement of 1929 has been extended in the *Pharmacopoea Internationalis* to include usual doses. A table gives the recommended usual and maximal doses for adults of all the drugs described in the book ; figures for single and daily doses are stated according to the mode of administration. An introductory statement indicates the procedure to be adopted when a physician desires to prescribe a larger dose than the stated maximum. Much care has been given to the compilation of this table. Leading physicians in Europe and America have been consulted through the members of the committee, and the World Medical Association has contributed useful comments.

Use of the Pharmacopoea Internationalis

The *Pharmacopoea Internationalis* has been prepared in the hope that its nomenclature, descriptions, and standards will be adopted by the national pharmacopoeia commissions. Its acceptance by those countries which already have a complete and up-to-date pharmacopoeia would do much to unify drug standards throughout the world. It is obvious that the *Pharmacopoea Internationalis* cannot be in legal conflict with national pharmacopoeias, since in any country it can have only the authority which the government of that country decides to give to it. The Third World Health Assembly has formally recommended the acceptance of the book by its Member States.[3]

The *Pharmacopoea Internationalis* should be especially useful to countries which have yet to develop a national pharmacopoeia or in which the national pharmacopoeia is in need of revision in order to bring it

[3] Resolution WHA3.10, *Off. Rec. World Hlth Org.* **28**, 19

up to date. It is hoped that the national health and pharmacopoeial authorities of such countries will decide to adopt the Ph.I. as a whole, and in its present state, as their official pharmacopoeia. In such cases, arrangements could be made for any of the editions to be supplied, in large quantities, at special low rates.

It should be mentioned that all countries are at liberty to make use of the material in the *Pharmacopoea Internationalis*, when compiling their national pharmacopoeias, without consulting the World Health Organization, but that any country wishing to publish a translation of the book in its national language under the title *Pharmacopoea Internationalis* must obtain WHO's consent and approval of the translation.

NUTRITION AND PUBLIC HEALTH

The report on the second session of the Joint FAO/WHO Expert Committee on Nutrition, held in Rome from 10 to 17 April 1951,[1] has recently been published as No. 44 of the *World Health Organization : Technical Report Series*. The report reveals the ever-increasing emphasis placed on nutritional problems in the public-health programmes of a large number of countries. Many governments have, in fact, requested technical aid from the specialized agencies. Thus WHO has collaborated, by an inquiry and the dispatch of laboratory equipment, in the establishment of a nutrition institute at Zagreb (Yugoslavia) ; the Organization has sent an expert in dietetics to the Medical College Hospital, Calcutta, to organize a training course for hospital dieticians ; and, in co-operation with FAO, WHO has given technical advice to the Egyptian Government on the development of public nutrition services.

The inquiry on endemic goitre, carried out under WHO auspices in Ceylon, and in Central and South America, has aroused public interest

[1] The following took part in this session :

Members :

FAO :

Professor M. J. L. Dols, State Adviser on Nutrition, Ministry of Agriculture, Fisheries and Food, The Hague ; Professor of Nutritional Science, University of Amsterdam, Netherlands

Professor A. Hassan Bey, Technical Adviser of the Permanent Commission on Nutrition, Faculty of Medicine, Fouad I University, Kasr-el-Aini, Cairo, Egypt

Dr. V. N. Patwardhan, Director, Nutrition Research Laboratories, Indian Council of Medical Research, Coonoor, India

Dr. Hazel K. Stiebeling, Chief, Bureau of Human Nutrition and Home Economics, US Department of Agriculture, Washington, D.C., USA

Professeur E. F. Terroine, Directeur du Centre national de Coordination des Etudes et Recherches sur la Nutrition et l'Alimentation, Centre national de la Recherche scientifique, Paris, France

WHO :

Dr. J. F. Brock, Professor of the Practice of Medicine, University of Cape Town, Union of South Africa

Dr. R. C. Burgess, Senior Nutrition Officer, Institute for Medical Research, Kuala Lumpur, Federation of Malaya

Professor A. B. Keys, Director, Laboratory of Physiological Hygiene, School of Public Health, University of Minnesota, Minneapolis, Minn., USA (*Chairman*)

(*continued on p. 262*)

and given rise to the hope on the part of the governments of being able one day to resist the development of this disease by relatively simple preventive measures.

An inquiry into kwashiorkor, which is probably " the most serious and widespread nutritional disorder known to medical and nutritional science ", was carried out in Africa by WHO and FAO experts, responsible respectively for studying the clinical features of the disease, and its prevention and relation to nutrition. According to their report, the conclusions of which are summarized below, it now appears possible to combat this disease by a simple treatment and to prevent it by improved diet.

These various achievements are reviewed in the report, and programmes for fresh activities are described. A brief summary of some of the main questions discussed by the joint committee is given below.

Endemic Goitre

Brazil, Ceylon, Colombia, Ecuador, Guatemala, and Mexico were visited by a WHO consultant, accompanied by local experts whose task it was to determine the incidence of endemic goitre in these countries and to plan, in conjunction with the governments, the practical application of preventive measures. It is well known that prevention, which is very simple in principle, consists in adding iodine to salt intended for consumption. However, although the iodization of refined salt is easy and is generally practised, the addition of iodine to crude salt, which is used as a condiment in a very large number of countries, is still not possible by simple and economical methods. During the past year WHO has encouraged research on this problem. One experiment consisted in pouring a solution of potassium or sodium iodate on to salt-pans during evaporation. The results showed that a large part of the iodate remains in solution and is not absorbed by the salt. This procedure consequently had to be given up, but other methods are being studied.

(*continued from p. 261*)

Professor B. S. Platt, Professor of Human Nutrition, London School of Hygiene and Tropical Medicine; Director, Human Nutrition Research Unit, Medical Research Council, London, United Kingdom
Dr. A. Riquelme, Director, Department of Nutrition, National Public Health Service, Santiago, Chile

Co-opted member :

Professor G. Bergami, Professor of Biochemistry and Physiology ; Director, Istituto della Nutrizione del Consiglio Nazionale delle Ricerche, Rome, Italy

Observers :

Dr. B. Borčić, Medical Adviser, UNICEF/WHO, UNICEF Headquarters, New York
Dr. G. Gallone, Director, Rome Office, International Labour Organization
Dr. L. Lapponi, Director, Health Services, Central Committee of the Italian Red Cross, Rome, Italy
Professor G. de Marzi, Director-General, Office of the High Commissioner for Food, Rome, Italy
Dr. N. S. Scrimshaw, Chief, Nutrition Section, Pan American Sanitary Bureau (WHO Regional Office for the Americas), Washington, D.C., USA ; Director, Institute of Nutrition of Central America and Panama (INCAP), Guatemala City, Guatemala
Dr. H. Wickwar, Department of Social Affairs, United Nations, New York

Secretaries :

Dr. W. R. Aykroyd, Director, Nutrition Division, FAO
Dr. F. W. Clements, Chief, Nutrition Section, WHO

Kwashiorkor

During the mission which they carried out under the auspices of WHO and FAO, Dr. J. F. Brock, Professor of the Practice of Medicine, University of Cape Town, Union of South Africa, and Dr. M. Autret, Chief, Area and Field Branch, Nutrition Division, FAO, visited the Belgian Congo, French Equatorial Africa, French West Africa, Gambia, the Gold Coast, Kenya, Liberia, Nigeria, Ruanda-Urundi, and Uganda. The report of these two experts [2] shows that the incidence of the disease, which exists in all the regions of Africa visited, is directly related to diet. Kwashiorkor occurs in a particularly severe form among peoples whose basic nutrition consists of manioc, plantains, yams, and maize, substances which are poor in proteins, both qualitatively and quantitatively. Animal proteins, such as those contained in meat, fish, and milk, have a protective effect. Among the characteristic symptoms of kwashiorkor are retarded growth in the late breast-feeding period, certain changes in skin and hair pigmentation, oedema, necrosis or fibrosis of the liver, and various dermatoses. Dyspigmentation is considered to be an essential symptom. In regions where the disease is prevalent, cirrhosis and primary carcinoma of the liver are found among adults in a higher proportion than in regions free from the disease. However, a direct connexion between these complaints and kwashiorkor has not been definitively established. In Africa, the disease appears among children aged from one to five, a period during which, curiously enough, a minimum of proteins is supplied by the diet although requirements are at a maximum. It is possible that a deficiency of an essential amino-acid, such as methionine, may be one of the fundamental causes of the disease.

A striking fall in mortality was brought about in certain regions by the provision of dried skim milk for children. This very simple treatment is unfortunately too little known in those regions where it should be applied.

Consequently, the committee recommended that governments draw the attention of health services and physicians to the symptoms of the disease and to the ease with which it may be treated with skim milk ; it also recommended that the report by Brock & Autret should be widely distributed. The preventive measures advocated for Africa are probably applicable to other parts of the world, as was stressed by the committee. Essentially they consist in making generally available those foodstuffs which can prevent the appearance of the disease. Fish may be an essential food, since it is easier to obtain fish rapidly than to increase production of meat and milk. Millets, sorghums, and rice should replace manioc wherever possible. The cultivation of green vegetables in rural areas and in village kitchen-gardens should be expanded, and the consumption of

[2] This report will be published in English in a forthcoming number of the *Bulletin of the World Health Organization*, and in both French and English in the *World Health Organization : Monograph Series*.

ground-nuts encouraged. These preventive measures could be carried out by way of illustration in the regions planned as " demonstration areas " in the FAO programmes. In the majority of hospitals and dispensaries in the affected regions skim milk, the best therapeutic agent at present known for the treatment of kwashiorkor, is not available ; it should, therefore, be provided. Nevertheless, the use of skim milk should be considered as an immediate and temporary measure only, as all efforts should be directed towards improving the local diet by the production and consumption of substances rich in proteins.

Assessment of Nutritional Status

WHO had been asked to collect information on surveys of nutritional status already carried out at the national level and to study the way in which this problem had been approached. The results of these researches were submitted to the committee, which approved them and incorporated them in its report in the form of directives for persons responsible for assessing nutritional status at a regional or national level. Inquiries so far carried out have been limited to detecting deficiencies and deficiency diseases. A further step should be taken : the determination of the relationship of nutrition to the physical and mental potential of the individual, as well as to his resistance to disease.

Among the criteria which are of value in such an assessment are mortality- and morbidity-rates, the study of the growth of infants and children, and possibly the number of premature births and stillbirths. Clinical study includes general inspection as well as detailed physical examination of the condition of the skeleton (for the detection of symptoms of rickets), the teeth, the muscles, the epithelial tissues, the glands and their secretions. It is recognized that malnutrition may be the cause of symmetrical dermatosis of the pellagroid type, follicular keratosis (lack of vitamins A or C), dyssebacia (ariboflavinosis), and Bitot's spots (vitamin-A deficiency). After detailing the easily detectable symptoms of malnutrition which affect the digestive system (changes in the lips, tongue, or teeth) and the cardiovascular system (tachycardia, oedema, etc.), the report mentions the neurological symptoms : those revealed by tests for knee and ankle jerk, paraesthesias, photophobia, amblyopia, and optic atrophy. Among endocrine disturbances, attention should be paid to endemic goitre, which should be considered as a public-health problem when an enlargement of the thyroid gland is observed in more than 5% of adolescent girls in a population group.

Clinical observations should be followed by physiological tests to reveal vitamin deficiencies, and laboratory tests. The latter are intended to confirm clinical diagnosis, to detect abnormalities before they assume a clinical form, or to diagnose parasitic infections. Analyses may be made, for example, for serum protein, for iron, and for serum phosphatase.

Prevention and Treatment of Severe Malnutrition During Periods of Disaster

Following a recommendation by the Third World Health Assembly, a group of specialists and Professor A. B. Keys, Director, Laboratory of Physiological Hygiene, School of Public Health, University of Minnesota, Minneapolis, USA, were given the task of submitting reports on various methods of preventing and curing severe malnutrition : building up food reserves, preservation and distribution of available stocks of food, treatment of patients suffering from the consequences of famine, organization of food relief in the event of famine, etc. These reports have been amalgamated and endorsed by the committee ; they will appear as No. 45 of the *World Health Organization : Technical Report Series.*

Other Questions

Nutrition as a subject in medical curricula, training in nutrition in underdeveloped areas, the role of applied nutrition in programmes for promoting social and economic progress, nutritional aspects of the welfare of the aged—all these questions were also examined by the joint committee and form the subject of recommendations included in the report.

CARDIOLIPIN ANTIGENS

The manufacture of cardiolipin and lecithin in various parts of the world is increasing as the use of these two substances in the serodiagnosis of syphilis becomes more general ; a number of countries have now undertaken their preparation. The improvements which cardiolipin- and lecithin-based antigens have brought to diagnosis, by increasing specificity and sensitivity, are based primarily on the purity of the antigen components. As emphasized in the report on the second session of the Subcommittee on Serology and Laboratory Aspects of the Expert Committee on Venereal Infections and Treponematoses, it is therefore of the utmost importance that the cardiolipin and lecithin be subject to control since " the advantages in using cardiolipin antigens would be lost if unsatisfactory products were placed on the market or produced in small lots in laboratories for local use without appropriate controls ".[1]

The chemical and serological control of cardiolipin and, in some cases, of lecithin produced in the USA and in certain other countries has, up

[1] *World Hlth Org. techn. Rep. Ser.* 1951, 33, 15

to the present, been carried out by the Division of Laboratories and Research, New York State Department of Health (USA). Some members of this Division, placing their experience at the service of control laboratories and of those who desire to ensure the purity of the products they employ, have published in the *World Health Organization : Monograph Series* a study entitled " Cardiolipin antigens ".[2] These authors, one of whom is Dr. Mary Pangborn, the discoverer of cardiolipin, describe in detail the methods and techniques which they apply to the control of cardiolipin and lecithin. The following summary gives the general principles of the methods used. Details concerning the various stages of the work can be obtained from the article itself.

The compounding of cardiolipin antigens requires preparation of pure cardiolipin and lecithin. Both substances may be prepared from beef-heart ; however, since egg lecithin is more easily purified than other lecithins, its use in antigens is recommended.

Minced beef-heart is extracted successively with acetone and methanol and the methanol extract is precipitated with barium chloride. After separation of the barium precipitate, lecithin may be precipitated from the filtrate with cadmium chloride.

The barium precipitate contains cardiolipin, which is purified by a series of fractionations of the salts of sodium, barium, and cadmium. The final product is a dehydrated ethanol solution of the sodium salt. The various steps which have been described in previous publications are here combined in a form which has been proved satisfactory in repeated use. It is emphasized, however, that other methods of purification may be equally satisfactory if they are shown to lead to the same final product.

Lecithin is best prepared by cadmium chloride precipitation of an ethanol extract of fresh egg yolks previously defatted with acetone. The precipitate is purified by : (1) repeated precipitation of a chloroform solution with ethanol containing cadmium chloride ; (2) separation from 80% ethanol saturated with petroleum ether ; (3) removal of cadmium and treatment of the free lecithin with a 4 : 1 mixture of ether and acetone at 3°-6°C to remove ether-insoluble matter. The same general procedure may be used to purify lecithin from more complex sources such as beef-heart, but a greater number of steps is needed. In either case the final product is a dehydrated ethanol solution of free lecithin.

The final solutions are analysed for nitrogen, phosphorus, iodine number, dry weight of solute, and in the case of lecithin, for amino-nitrogen. Details for the determination of phosphorus, iodine number, and dry weight are given.

Serological as well as chemical tests are required to determine whether new lots of cardiolipin and lecithin compare satisfactorily with reference

[2] *World Hlth Org. Monogr. Ser.* 1951, **6**, published originally in *Bull. World Hlth Org.* 1951, **4**, 151 (Article in English with summary in English and French)

standard lots. Both complement-fixation and flocculation tests are used. An antigen mixture is prepared according to a previously determined formula, the new lot being used instead of the corresponding reference-standard component ; this antigen is compared with one composed entirely of reference-standard materials, in such a way as to show whether stipulated conditions of agreement between them are met.

Directions are given for comparing antigens in the two tests officially used by the New York State Department of Health. The text includes only such portions of these procedures as are needed for evaluation of antigens ; the article is not intended as a complete manual for serodiagnostic use.

The principles of the complement-fixation test have been discussed in numerous publications ; the details of technique here presented include simplifications and modifications adopted as a result of recent experience. The antigen formula is : cardiolipin 0.0175%, lecithin 0.0875%, cholesterol 0.3%.

Two groups of sera, defined as " non-reacting " and " high-titre ", are selected in a one-tube screening-test with the standard antigen. For each group, conditions are stipulated for rejection and for tentative acceptance of an antigen-component lot in question, tests being made with the reference-standard antigen in parallel by the respectively prescribed technique. Observations with each group are made in a serial manner, and a system of direct-probability sequential analysis is applied to yield a decision, to accept or to reject, at the earliest opportunity according to the stipulated criteria. These are based upon experience with the respective technique as indicators of satisfactory behaviour of antigens in subsequent use in corresponding serodiagnostic tests ; changes in technique or in tolerances of error might require corresponding changes in the criteria for decisions. Detailed directions and tables are given to facilitate the application. The fundamental ideas involved in direct-probability sequential analysis are discussed briefly in an appendix.

The antigen for the slide flocculation test has the formula : cardiolipin 0.03%, lecithin 0.3%, cholesterol 0.9%. The test is performed on a paraffin-ringed slide, rotated, and read promptly under a microscope. Results are expressed as $-$, $\pm$, $+$, $2+$, $3+$, or $4+$. Photographs typical of these degrees of reaction are given as an aid in reading. High-titre sera are tested in serial dilution in salt solution ; the titre is defined as the highest dilution to give a $2+$ reaction.

Test and standard antigens are compared by simultaneous tests on each of 3 days with 10 non-reacting, 10 low-titre, and 10 high-titre sera, also with a single pool of high-titre serum used in dilution. No statistical method of evaluation has been devised for this test, but conditions of agreement between two antigens based on experience with the technique are stipulated.

VARIETIES OF THE PLAGUE BACILLUS

The existence of various geographic strains of the plague bacillus, distinguishable by their biochemical characteristics, such as action on glycerine and nitrates, has been demonstrated by several authors in the course of the past few years. One of these authors, Dr. R. Devignat, Directeur du Laboratoire médical de Costermansville, Belgian Congo, has just published in the *Bulletin of the World Health Organization* an article entitled " Variétés de l'espèce *Pasteurella pestis* ",[1] in which he studies, in particular, the *P. pestis* strains of central Africa.

The author defines three varieties of *P. pestis* :

variety I (oriental), which does not ferment glycerine but produces nitrous acid ;

variety II (central Asiatic and central African), which ferments glycerine and produces nitrous acid ;

variety III (from south-east Russia), which ferments glycerine and does not produce nitrous acid.

After discussing the value of the various biochemical reactions enabling these varieties to be differentiated, the author emphasizes the similarity of the roles the latter play in plague transmission and immunology. He considers the possibility of permutations between the varieties, but this still remains an open question.

The present geographical distribution of the three varieties is reviewed, together with their historical behaviour and their role in the origin and progress of the various epidemics recorded since antiquity.

Most study has been concentrated on variety I, the primary foci of which are found in India, Burma, and south China ; this is the pathogenic agent of oriental plague, which caused the 1894 pandemic. It is also responsible for the foci of sylvatic plague in California and South Africa, and of rural plague in South America.

Variety II—perhaps the oldest—came from central Asia (Transbaikalia, Mongolia, and Manchuria) and moved west with the Aryan invasions ; it was the cause of the plague among the Philistines. Later it appears to have followed the valley of the Nile into central Africa, leaving foci which still remain today. It is this variety also which, moving back towards the Mediterranean in the sixth century, is believed to have provoked the famous " Justinian plague " which spread throughout the Roman Empire. Since then, it seems to have disappeared from Europe and has remained isolated in Africa.

Variety III, which might be the result of a slow transformation of variety II, seems to have spread in the 14th century from the Caspian Sea throughout the whole of Europe, where it caused the " Black Death "

[1] *Bull. World Hlth Org.* 1951, 4, 247 (Article in French with summary in English and French)

and, through the black rat, established itself endemically during four centuries.

Finally, the author considers that these three varieties of *Pasteurella* (or *Yersinia*) *pestis* could be named var. *orientalis*, *antiqua*, and *mediaevalis* respectively, and he proposes that a systematic worldwide biochemical study of all plague strains be developed.

PLAGUE EPIDEMIOLOGY IN BOMBAY PROVINCE

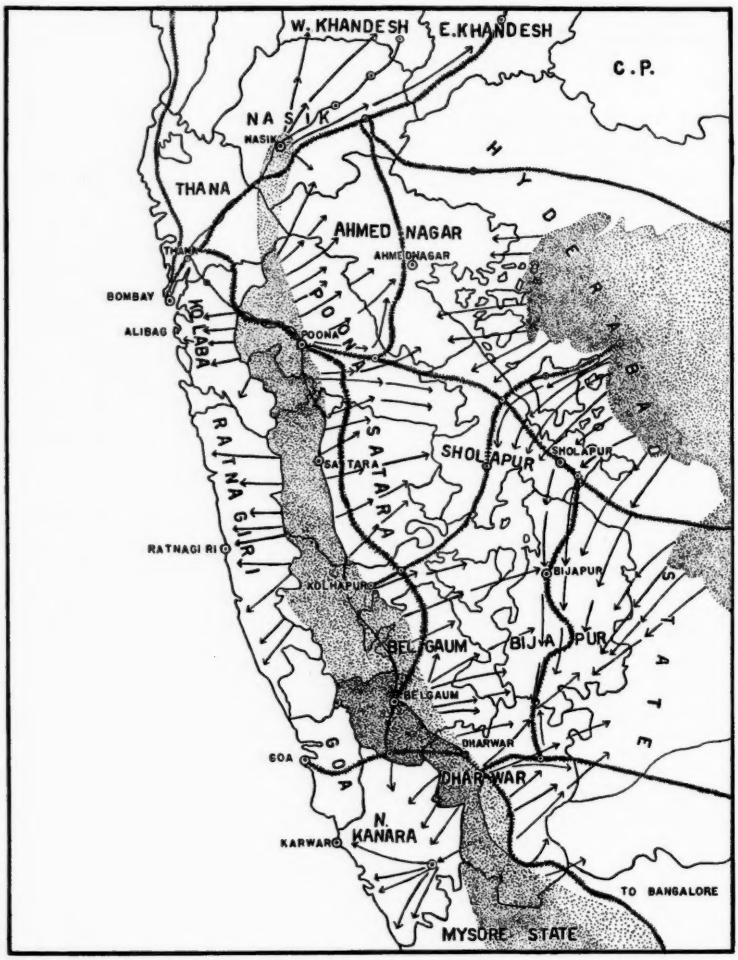
A systematic study of the epidemiology of plague has been undertaken in Bombay Province, India, by Dr. M. Sharif, formerly Assistant Director in charge of the Department of Entomology, Haffkine Institute, Bombay. The author gives the plague endemic centres for the period 1930-45 in two divisions of this province and retraces the path of the epidemics and the course of their progress on the basis of data supplied by public-health services. The information obtained from this careful survey—presented in a suitable way on descriptive maps, so that the date and duration of epidemics in each locality are clearly shown—makes it possible to a certain extent to forecast the advent of epidemic outbreaks in centres where they are frequent. The survey is far from being of purely regional interest ; it suggests methods of work which could be applied with equal success to other countries where plague is endemic. The original technique of the epidemiological surveys worked out by the author and illustrated by maps, and the conclusions to which his investigation has led him, have been published in the *Bulletin of the World Health Organization*.[1]

The analysis of plague epidemics from 1930 to 1945 in two divisions of Bombay Province indicates that the infection emerges from the endemic centre located in the Western Ghats and that in the hills of Hyderabad State. The district of Sholapur always imports plague from the Hyderabad State ; all the other districts, from the endemic centre situated in the Western Ghats. Bijapur and Ahmednagar districts, however, receive infection from both these endemic centres. The districts of North Kanara, Ratnagiri, and Kolaba suffer little from plague on account of their location on the eastern sudden slopes and top of the Western Ghats. The power of dissemination of plague from towns in these three districts is very slight, probably owing to less grain traffic or to the excessive dampness of the area.

In Bombay Province, wild rodents do not play any part in the perpetuation and transmission of plague ; only domestic rats are involved. During

[1] *Bull. World Hlth Org.* 1951, 4, 75 (Article in English with summary in English and French)

FIG. 3. PLAGUE ENDEMIC CENTRES AND SPREAD OF PLAGUE IN CENTRAL AND SOUTHERN DIVISIONS OF BOMBAY PROVINCE, 1930-45



The intensity of shading indicates the potency of the endemic areas, and arrows indicate only the direction of radiation of plague but not the actual course of its progress.

the off-season the infection runs the course of a slow subterranean enzootic in some suitable places. The end of the hot and dry off-season is marked

by the onset of the rainy season, which operates in two ways: first, it increases the rat population indoors ; secondly, it lowers the temperature and raises the humidity, which leads to an increase of the flea population and permits the fleas to leave the rat burrows and to attack human beings.

The idea that plague is more a rural than an urban problem appears to be fallacious. The disease may not break out severely in the commercial towns ; but still they play an important role in dispersing plague to villages, where it flares up owing to the higher susceptibility of their rat populations.

There are two types of plague epizootics. In warm tablelands and plains, the infection is often severe, leading to a very heavy mortality among rats, which results in the disappearance of the disease within a short time. In the cooler regions comprising the watersheds of the Western Ghats, plague infection is slow-spreading and persists for a long time owing to lower rat mortality ; these areas, which have moderately moist and cool climatic conditions throughout most of the year, are considered to constitute an endemic plague centre.

In the Indo-Pakistan subcontinent, seven endemic plague centres could be delimited. Three of them are located in the submontane plains of the Himalayas. Of the others, three are found in watersheds of the mountain ranges of southern India and one in those of central India.

Reports from WHO Fellows

Many of the letters and reports received from WHO Fellows are of such interest that they deserve to be read by a wider public. They demonstrate more vividly than a series of facts and figures both the character of the fellowship programme and the response of the Fellows themselves. Selections from these reports are therefore published from time to time, but it must be emphasized that the opinions expressed are those of the Fellows.

Dental Services in Scandinavia and England

Through a WHO fellowship, Dr. C. L. Sebelius, Director, Dental Hygiene Service, Tennessee Department of Public Health, Nashville, Tenn., USA, was given an opportunity to observe dental-health activities, particularly those relative to children, in Scandinavia and Great Britain. Some of Dr. Sebelius' observations are summarized below.

Norway

The municipality of Oslo spends approximately 1% of its total tax money on a dental-health programme for children. School dental services, which were initiated in 1910,

take care of 97% of the schoolchildren, free of charge. Greater Oslo now has a dental clinic in almost every school—about 50 in all. General dental services, organized in 1938, care for children from 3 to 7 years of age and for young people between the ages of 14 and 18. For these services parents pay 5 kroner ($0.70) per preschool child, and 10 kroner ($1.40) per young person (14-18 age-group) per year. People in the 18-21 age-group also receive government-subsidized dental care through surplus sick-insurance funds ; treatment is given by private practitioners, and a percentage of the cost is paid by the sick-insurance fund.

Dental programmes in other parts of Norway are subsidized by the government to the extent of 25% in rural areas and 12½% in urban centres.

Dental research and dental education are given considerable attention in Norway —e.g., since 1918 there has been a society for the preservation of teeth, devoted to dental-hygiene education ; and in March 1951 a new Norwegian Institute for Dental Research was opened in Oslo. Dentistry for children occupies an important place in the dental training curriculum.

Sweden

Sweden's public dental service began in 1939. The State provides money for equipping clinics and subsidizes treatment on a per-child basis, grants being larger in rural areas than in cities. The school dental service in Stockholm comprises 50 clinics and is served by 90 dentists.

Sweden has a systematic programme for training dental nurses (dental hygienists) and dental technicians. The dental nurse receives four months or more of experience before entering school and then attends courses for six months. Before being granted a certificate, she must spend nine months in a clinic or in a private office. There are three schools for training dental nurses according to this plan. The dental technician's training is also well organized. Following three and one-half years' experience, he goes to a training school for ten months and then " practices " for a year before being granted a diploma or licence. There are two schools for training dental technicians, with about 24 students in each class under training.

At Vipeholm, a research project has been under way since 1947 to study the relationship between nutrition and tooth diseases. Results are expected to be published soon.

Denmark

In Denmark, school dental services are considered among the most worthwhile social reforms of the country. Eighty-three of Denmark's 85 towns and 385 of her 1,300 parishes have school dental programmes. School dentists are public officers, and private dentists are paid on a per-child basis. About 80% of schoolchildren now receive dental service ; in Copenhagen, where there are 80,000 schoolchildren, 96% are cared for by the government service.

Every child who is born with a cleft palate or harelip has the defect recorded on his birth certificate and is subsequently given free treatment. A team consisting of a speech therapist ; surgeon ; eye, ear, nose, and throat specialist ; and dentist decides on the needs of these children. Harelips are operated on when the children are two months of age ; cleft palates, at the age of two years. Approximately 150 new cases were seen last year, and about 270 operations were performed.

Much of the dental work in Denmark is done under insurance plans in which the insurance companies pay approximately half the fees and the patients the rest.

Dr. Sebelius was impressed by the teaching facilities at the dental school in Copenhagen and by the method of selection of students. About 300 persons apply for admission to the school yearly. A one-year course in anatomy, physiology, chemistry, dental

anatomy, and dental technology is given to these people, and, at the end of the year, the 100 students with the highest grades are admitted to the dental school for the regular four-year course. This means that those who complete the training actually study for five years.

England

Among the facts and figures concerning England's dental health services which Dr. Sebelius found interesting was the statement that, between 5 July 1948 and 31 March 1951, 9,657 dentists participated in the national health service programme. These dentists saw 14,800,000 patients. Also interesting was the fact that 60% of the money spent on dentistry under the National Health Service Act has been spent on dentures.

At the East Grinstead Maxillo-Facial Unit, where Dr. Sebelius watched several operations, a new type of bloodless surgery is being performed by means of lowering the patient's blood pressure ; about 500 operations of this type have been performed.

Dr. Sebelius found his study-tour very worth while and, in expressing his appreciation to WHO, also expressed the hope that other public-health dentists might be similarly privileged to travel and study.

Notes and News

Dr. H. S. Gear to Become Assistant Director-General

Dr. H. S. Gear, Deputy Chief Health Officer for the Union of South Africa, will soon become Assistant Director-General of WHO in charge of the Department of Central Technical Services, replacing Sir Sahib Singh Sokhey upon the latter's retirement.

Dr. Gear was born in 1903 in the Transvaal, Union of South Africa, He received his medical education at the University of Witwatersrand, Johannesburg, and his specialized training at the London School of Hygiene and Tropical Medicine.

He has held various important posts in South Africa and abroad : from 1932 to 1935 he was in charge of the Department of Preventive Medicine and Medical Statistics at the Henry Lester Institute, Shanghai ; from 1935 until the present time, he was on the staff of the Union Health Department, Union of South Africa, except for the period from 1940 to 1944 when he served as a senior medical officer with South African and British Armed Forces in East Africa and the Eastern Mediterranean Region.

Dr. Gear has been very prominent in WHO work ; he acted as delegate for his country at the International Health Conference in 1946 and at the First and Second Health Assemblies, and was appointed, by the Union of South Africa, to a seat on the Executive Board from 1948 to 1951. He served as Chairman of the Executive Board for a year and represented the Board at the Third and Fourth Assemblies. In addition, he has participated in the meetings of several expert committees and technical groups.

Dr. Sokhey, the retiring Assistant Director-General, joined WHO in March 1950,[1] after a long and distinguished career at the Haffkine Institute, Bombay.

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[1] *Chron. World Hlth Org.* 1950, 4, 152

New Assistant Director Named by PASB

Dr. P. C. A. Antunes has been appointed Assistant Director of the Pan American Sanitary Bureau (PASB), WHO Regional Office for the Americas. He succeeds Dr. J. R. Murdock, who has resigned to resume his post in the US Public Health Service. Dr. Antunes' appointment follows three years of work in charge of the Bureau's public-health programmes.

Dr. Antunes was born and educated in São Paulo, Brazil. He obtained degrees in public health at Johns Hopkins University, Baltimore, Md., USA, and subsequently held important public-health posts in Brazil. As medical officer in the National Yellow Fever Service, sponsored by the Rockefeller Foundation, he carried out field investigations on jungle yellow-fever in both Brazil and Colombia. He also served in the malaria services of his country, in which capacity he directed large-scale malaria-control campaigns.

In 1945 Dr. Antunes became Professor of Rural Health Practice and Parasitology at the School of Hygiene and Public Health in São Paulo. Two years later he was named Director of the São Paulo State Department of Health, from which position he was released by his government to accept the post of Chief of the Division of Public Health with the PASB in 1949. On a recent visit to his native city, Dr. Antunes was appointed Dean of the School of Hygiene and Public Health of the University of São Paulo, but he has been released by the University to continue his work with the PASB.

Dr. Murdock, the resigning Assistant Director, served with the PASB for nearly 15 years, during which time he saw the Bureau grow from an organization with an annual income of only $115,000 and professional staff drawn largely from the US Public Health Service to one with an international staff and a budget of almost $2,000,000. His work included programmes for eradication of yellow fever and plague in several South American republics, efforts to obtain treatment facilities for poliomyelitis patients in Chile and Colombia, and direction of the organization of malaria services in the Dominican Republic. He was instrumental in developing the existing close working relationship between the PASB and WHO, and in the past year was particularly concerned with the preparation of projects for implementation under the United Nations Technical Assistance Programme.

International Research Centre for Chemical Microbiology Opened in Rome

In June 1951, the first International Research Centre for Chemical Microbiology was opened in Rome. Attached to the Istituto Superiore di Sanità—Italy's chief centre for medical research and drug control—this Centre for the study of mycology, chemical engineering, and biochemistry will be directed by Professor E. B. Chain, F.R.S., London, co-discoverer of penicillin. Its facilities, which include pilot and full-scale fermenters as well as modern extraction equipment, will be available to WHO Fellows—four of whom are now working at the Centre—for training and research in antibiotics.

To mark the inauguration of the Centre, a five-day symposium—sponsored by the Istituto Superiore di Sanità, the Council for the Co-ordination of International Congresses of Medical Sciences, and WHO—was held. The directors of several national research institutes, as well as other leading scientists from Belgium, France, Italy, the Netherlands, Sweden, the United Kingdom, and the USA, attended this symposium, the subject of which was " Bacterial growth and its inhibition ". Many world-renowned experts on antibiotics contributed papers, the subjects covered including : the mechanism of growth and the metabolism of micro-organisms ; the development of resistance to the action of antibiotics ; and the factors controlling penicillin fermentation. The symposium was a great success and the new knowledge acquired from it should do much to enrich the science of antibiotics.

International Training Course in Health Statistics

In late June a six-day course was held in Geneva, under the auspices of the WHO Special Office for Europe, to give special training to statisticians from 14 countries in the use of the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*,[2] which constitutes the annex to WHO Regulations No. 1. The *Manual*, which is published by WHO in English, French, and Spanish, is designed to promote uniformity in reporting morbidity and mortality statistics throughout the world. Although it is the most effective tool devised to date for this purpose, there are many problems involved in its application. The training course was primarily intended for statisticians who encounter such problems in their daily work of classifying diagnostic statements on death certificates and medical records according to the *Manual*.

WHO Fellows from Austria, Belgium, Denmark, Finland, France, Ireland, Israel, Italy, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, and Yugoslavia attended the course. Instruction was given by Dr. P. Stocks, head of the WHO Centre for Classification of Diseases, General Register Office, Southport, England ;[3] Dr. B. G. Salomonson, Medical Officer, Central Bureau of Statistics, The Hague, Netherlands ; Dr. Marie Cakrtova, Chief of the WHO Section on the International Classification of Diseases and Causes of Death ; and Mr. L. Corbett, Technical Assistant, WHO Centre, Southport, England. The course consisted of lectures, practical exercises, and discussions. It dealt with the structure of the Classification and its use, the meaning and application of the rules of classification, editing of certificates of cause of death, and inquiries to medical certifiers for additional information. The course also included a comprehensive examination of supplementary interpretations and instructions which would ensure uniformity in dealing with specific problems arising in the application of the *Manual*.

Medical Teaching Mission Sent to Israel and Iran

Fourteen specialists, from six different countries, have gone to Israel and Iran on a teaching mission sponsored jointly by WHO and the Unitarian Service Committee. With the aid of Mr. H. L. Brooks, representative of the Unitarian Service Committee and administrative director of the mission, members of the WHO staff have prepared a curriculum which is designed to serve the general health interests of the countries visited and which includes subjects such as environmental sanitation, medical education, anaesthesiology, epidemiology, and public health, in addition to basic medical and clinical sciences. The visiting team members are working directly with specialists in their respective fields—exchanging information, giving lectures and conferences, and visiting hospitals, clinics, schools, and other medical institutions. They have taken with them the necessary teaching materials, including demonstration and laboratory equipment and surgical instruments.

Clinical and other specialists of the mission are spending one month in Israel, following which they will go to Iran for three weeks. The public-health unit of the mission, directed by Dr. K. Evang, is remaining in Israel for two months.

The roster of members of the teaching mission is as follows :

Dr. L. M. Davidoff (Chairman of the mission), Clinical Professor of Neurosurgery, New York University Post-Graduate Medical School, New York, N.Y., USA

Dr. K. Evang, Surgeon General of Public Health, Oslo, Norway

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[2] *Bull. World Hlth Org., Suppl. 1*, 1948/9

[3] *Chron. World Hlth Org.* 1951, 5, 138

Dr. J. E. Gordon, Professor of Preventive Medicine and Epidemiology, Harvard University School of Public Health, Boston, Mass., USA

Dr. E. Grzegorzewski, Director of the Division of Education and Training Services, World Health Organization, Geneva, Switzerland

Dr. P. Klemperer, Clinical Professor of Pathology, Columbia University College of Physicians and Surgeons, New York, N.Y., USA

Dr. S. Z. Levine, Professor of Pediatrics and Pediatrician in Chief, New York Hospital, Cornell Medical Center, New York, N.Y., USA

Dr. G. K. Moe, Professor of Physiology, State University of New York, Medical Center at Syracuse University, Syracuse, N.Y., USA

Dr. L. E. Morris, Assistant Professor of Anesthesiology, State University of Iowa, College of Medicine, Iowa City, Iowa, USA

Dr. H. Osmond-Clarke, Honorary Surgeon and Assistant Director, The Orthopaedic and Accident Hospital, London, United Kingdom

Dr. L. G. Rigler, Professor of Radiology, University of Minnesota Medical School, Minneapolis, Minn., USA

Dr. C. Semb, Professor of Surgery, University of Oslo, Norway

Dr. H. Theorell, Professor of Biochemistry, Head of the Biochemical Department, Medical Nobel Institute, Stockholm, Sweden

Professor R. G. Tyler, Professor of Sanitary Engineering, University of Washington, Seattle, Wash., USA

Dr. E. Warburg, Professor of Internal Medicine, University of Copenhagen, Copenhagen, Denmark

Similar teaching missions to Colombia, Finland, Germany, Greece, Japan, Poland, and the Philippines have been sponsored by WHO and the Unitarian Service Committee, which is a private voluntary organization devoted to humanitarian service on an international basis. The present mission, however, is the first of such size and scope and the first to go to the Eastern Mediterranean Region.

Campaign to Control Eye Diseases among Arab Refugees

Following surveys by WHO consultant Professor G. B. Bietti,[4] efforts to combat eye diseases among the Arab refugees from Palestine are being renewed by the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWAPRNE). Dr. P. F. Ferraris de Gaspare, assistant to Professor Bietti, has been engaged by UNRWAPRNE to undertake a six-month control programme against conjunctivitis and trachoma, which are extremely prevalent among the refugees—e.g., eye cases accounted for some 114,000 visits to UNRWAPRNE's 81 medical clinics in a single month.

Dr. Ferraris de Gaspare has begun his work in the Jordan Valley and Gaza, and will later go to camps in Lebanon and Syria. The project aims to reach as many sufferers from eye diseases as possible in the specified six-month period and to organize ophthalmological services which can be continued by UNRWAPRNE and the relevant health authorities.

Nutrition Course in South-East Asia

A 3½-month course in nutrition was started on 3 September at the All-India Institute of Hygiene and Public Health, Calcutta, under the sponsorship of the Government of India, FAO, and WHO, with funds provided through the United Nations Technical

[4] *Chron. World Hlth Org.* 1951, **5**, 27

Assistance Programme. Fellowships have been granted by WHO and FAO for trainees from Burma, Ceylon, India, Indonesia, Malaya, Portuguese India (Gôa), Thailand, and Viet Nam to attend the course, which includes classroom lectures and practical laboratory work at the Institute and field experience in rural centres near Calcutta.

Lt-Col. C. K. Lakshmanan, Director of the All-India Institute, is acting as director of the training course ; he is assisted by Dr. K. Rajagopal and other members of the Institute staff. Instructors include Dr. K. Mitra, Assistant Director-General of Public Health, Government of India ; Dr. V. N. Patwardhan, Director of the Nutrition Research Institute, Coonoor, India ; Dr. R. C. Burgess, newly appointed Chief of the Nutrition Section at WHO Headquarters, formerly with the Institute of Medical Research at Kuala Lumpur, Malaya ; Miss J. Ritchie, of the FAO Bangkok office ; and Miss L. Maramba, of the Philippines.

Priority for Purchasing Chlorinated Hydrocarbons Granted to WHO

As a result of continued efforts on the part of WHO to meet the needs of Member States for DDT, BHC, and other chlorinated-hydrocarbon insecticides, which are in short supply, the Organization has been granted priority for purchasing supplies of this insecticide from the USA. The Director-General of WHO has notified Member States that WHO is prepared to purchase these insecticides for them through a general export licence granted by the USA. Priority will be given only to orders placed for delivery during the third and fourth quarters of the year, however, since US agricultural needs take up most of the production from January through June. Member Governments are urged to arrange for their purchases in the US market to be shipped before the end of the year so as to obtain the best prices and avoid conflict with US domestic requirements.

The US National Production Authority agreed that it is essential to world health to continue public-health programmes against malaria and yellow fever, which are dependent on DDT, BHC, and similar products. The high priority ratings which have been granted to export orders of chlorinated-hydrocarbon insecticides for public-health and agricultural programmes—obtained largely through the efforts of the Pan American Sanitary Bureau, WHO Regional Office for the Americas, with the co-operation of the US Public Health Service—will make accessible approximately 15 million pounds of these essential commodities yearly.

Zoonoses Control

Israel

Acting upon FAO/WHO advice concerning brucellosis control,[5] the Israeli Government has undertaken an extensive vaccination programme of cattle, utilizing Strain 19 vaccine. This measure was considered necessary because of the programme of cattle importation which is under way in Israel.

Approximately 15,000 dogs have been vaccinated with Flury vaccine in the WHO-sponsored rabies-control programme in Israel.[6] Since inaugurating the vaccination campaign, the number of cases of rabies has dropped precipitately ; and it is felt that a large measure of success in controlling this disease can be attributed to the vaccination programme. Vaccination of dogs as they reach the age of 4-6 months is being continued. The Israeli Government is now proceeding with a campaign to eliminate all stray and unvaccinated dogs. Poisoning of jackals with strychnine will be the next step, to be undertaken in the near future.

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[5] *Chron. World Hlth Org.* 1951, 5, 127

[6] *Chron. World Hlth Org.* 1951, 5, 17

Europe

Dr. Wesley W. Spink, Professor of Medicine, University of Minnesota Medical School, Minneapolis, Minn., USA, served as a WHO brucellosis consultant during the past summer. He visited FAO/WHO brucellosis centres in England, France, Italy, and Yugoslavia, as well as other brucellosis laboratories in Europe. During his visits Dr. Spink assisted in brucellosis problems of importance in the various countries, and also advised WHO on co-ordination of research in future antibrucellosis activities.

PASB Undertakes Programme to Control Aftosa

The Pan American Sanitary Bureau (PASB), WHO Regional Office for the Americas, has announced the establishment in Brazil of a Pan American Aftosa Centre, which will serve the whole American Continent. Aftosa, commonly known as foot-and-mouth disease, is an extremely contagious animal disease which affects cattle in more than 50 countries and causes great losses in meat and milk supplies. The new Centre will provide diagnostic facilities, which are all-important in the control of the disease, and, in addition, will train workers and undertake research assignments. To date, 16 of the 21 American republics have registered their approval and support of the Centre.

The project for aftosa control, plans for which cover a five-year period, is being financed by the Organization of American States as part of its technical assistance programme. Brazil, as host government, is furnishing the land, buildings, local labour, services, and utilities. The installations will be located at São Bento, about 15 miles from Rio de Janeiro, where new buildings will be added to the laboratories already on the site assigned to the Centre.

Dr. A. Eichhorn, formerly of the Bureau of Animal Industry, US Department of Agriculture, has been appointed Director of the Centre. Dr. Eichhorn has had much experience in research on the control of animal and human diseases, in both America and Europe.

UNICEF Office Facilities in London Made Available to WHO

Announcement has been made of arrangements for WHO staff members to use the facilities of the UNICEF London office when the need arises. Secretarial aid, booking of hotel reservations, and other types of general assistance are available through Mr. D. Ward, UNICEF London representative, at the following address : c/o United Nations Information Centre, Russell Square House, Russell Square, London, W.C.1.

Views on WHO

WHO and Venereal-disease Control

In an article entitled " Perspectives in Venereology, 1950 ", published in the *Bulletin of Hygiene*, London (1951, **26**, 101), R. R. Willcox calls attention to WHO's role in advancing venereal-disease control :

" Perhaps the most significant contributions of the past year have been made by the World Health Organization. From the inception of WHO problems relating to malaria, tuberculosis, malnutrition and the venereal diseases have received priority. Much of the early work has been of necessity exploratory in nature but now, after less than three years of official existence, it can point to the successful operation of vast projects aimed at the treponemal diseases on a scale almost undreamed of only a few years ago. At the time of writing a huge mass treatment campaign employing procaine penicillin is attempting to eradicate yaws and syphilis from the island of Haiti, another proceeds apace in Indonesia, another in Bosnia-Herzegovina, while yet another, which may ultimately lead to the reduction, if not virtual extinction, of *bejel* from the Euphrates and Tigris valleys, has just commenced in Iraq. Others are planned . . . Certainly it is to WHO, for the successful organization of these campaigns, that the honours for the greatest advances of the year must fall."

Medical Development in Africa

A recent editorial in *Medicine Illustrated*, London (1951, **5**, 396) expresses satisfaction with WHO's plans to set up a Regional Organization for Africa :

". . . The World Health Organization, which has performed such striking work in the Near East, India, Far East, and the Pacific, has so far had but limited access to Africa. This is a pity as it is here that perhaps its most striking successes are capable of being achieved. True, there have been a number of small-scale investigations concerned with bilharzia, malnutrition and other subjects, but all of those who cherish the idea of better health on an international scale will welcome the news from Geneva that Africa, south of the Sahara, is soon to be served by a WHO Regional Organization ; . . .

" Directors of health in territories which have in the past lacked the money for important medical projects may now feel that there is a considerable fund on which they now can draw, and all who study African affairs will particularly welcome the acceptance by the Union of South Africa of the principle to establish a Regional Organization. Southern Rhodesia, indeed, has for some time been an associate member. From this auspicious beginning we may expect a great future for the health of the African. Even if no benefit was likely to accrue to the Africans themselves—which is quite impossible—with increasing facilities of transport we have in the fully-equipped African hospitals of the future a great potential training ground, a University of Field Experience, for many young qualified European doctors. One day a ' house job ' in equatorial Africa may be regarded as an essential part of our medical education."

Published on 30 October 1951

PHARMACOPOEA INTERNATIONALIS

FIRST EDITION

Volume I

THE *Pharmacopoea Internationalis*—the first international pharmacopoeia—volume I of which appears now in English and French and will shortly be available in Spanish also, is a work of historic importance, produced with a view to fulfilling the desire, long felt by pharmacists and physicians throughout the world, for the establishment of internationally recognized standards and nomenclature for pharmaceutical preparations in universal use.

The compilation of this work was begun in 1937 under the auspices of the League of Nations Health Organization but, owing to the difficulties of wartime, little progress was made until 1947, when the Interim Commission of the World Health Organization set up the WHO Expert Committee on the Unification of Pharmacopoeias. This committee has worked unceasingly since its establishment and, in addition to the first volume, has already prepared much of the material to be included in the second volume.

The *Pharmacopoea Internationalis* is similar in form to the present-day national pharmacopoeias. Volume I consists principally of 199 monographs, giving specifications for various drugs and preparations, including antitoxic sera and some of the newer antimalarials, such as Proguanil Hydrochloride. There are 43 appendices, giving particulars of the reagents and test solutions, solutions used for volumetric analysis, weights and measures, international atomic weights, and usual and maximal doses for adults of drugs included in volume I, and describing methods for assaying and determining the potency of certain of the substances mentioned in the monographs. The volume also contains general instructions and explanations of terms used and a note on patents and trademarks.

The *Pharmacopoea Internationalis* (Ph. I.) should be particularly useful to countries which have not yet developed a national pharmacopoeia, as well as to those countries whose national pharmacopoeias need revision to bring them up to date. It is hoped that the health and pharmacopoeial authorities of the former countries will decide to adopt the book as a whole as their official pharmacopoeia. A supplement could be prepared by the country concerned so as to complete the Ph.I. according to national requirements. In such cases, arrangements could be made for any of the editions to be supplied in large quantities at special low rates.

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